

**CUSTOMER NO.: 24498**

**Serial No. 10/086,649**

Reply to First Office Action dated: 07/03/06

Response dated: 09/18/06

**PATENT  
PU020030**

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**REMARKS**

In the Office Action, the Examiner stated that claims 1-24 are pending in the application and that claims 1-2, 6-14 and 18-24 stand rejected. The Examiner further stated that claims 3-5 and 15-17 are objected to. By this response claims 1-2, 11, 13-14 and 19 are amended to more clearly define the invention of the Applicant and not in response to prior art. All other claims continue unamended.

In view of the amendments presented above and the following discussion, the Applicant respectfully submits that none of these claims now pending in the application are anticipated under the provisions of 35 U.S.C. § 102 or rendered obvious under the provisions of 35 U.S.C. § 103. Thus the Applicant believes that all of these claims are now in allowable form.

**Rejections**

**A. 35 U.S.C. § 102**

The Examiner rejected the Applicant's claims 1-2, 6, 11-14, 18, 23 and 24 under 35 U.S.C. § 102(e) as being anticipated by Suito et al. (US Patent No. 6,925,340, hereinafter "Suito"). The rejection is respectfully traversed.

"Anticipation requires the presence in a single prior art reference disclosure of each and every element of the claimed invention, arranged as in the claim" (*Lindemann Maschinenfabrik GmbH v. American Hoist & Derrick Co.*, 730 F.2d 1452, 221 USPQ 481, 485 (Fed. Cir. 1983)). (emphasis added). The Applicant respectfully submits that Suito fails to teach each and every element of at least the Applicant's claim 1, which specifically recites:

"A method for playing an audio track during video trick mode playback of a video presentation, the method comprising:  
 reading digital data from a storage medium, said digital data representing audio programming corresponding to the video presentation;  
 decoding a plurality of digital audio samples corresponding to a selected portion of the video presentation from a portion of said read digital data;  
 repeating or dropping selected ones of said digital audio samples at a rate corresponding to a selected trick mode video playback speed of said video presentation;  
 transforming said digital audio samples from time domain to corresponding frequency domain audio samples; and  
 scaling a playback audio frequency of said frequency domain audio samples in accordance with said trick mode playback."

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With respect to at least claim 1, the Applicant's invention is directed at least in part to a method for playing an audio track during video trick mode playback of a video presentation including repeating or dropping selected ones of the digital audio samples at a rate corresponding to a selected trick mode video playback speed of the video presentation, transforming the decoded audio samples from a time domain to a corresponding frequency domain and scaling a playback audio frequency of the frequency domain audio samples in accordance with the trick mode playback.

In support of at least claim 1, the Applicant in the Specification specifically recites:

"In step 315, the control CPU 122 can determine  $n$ , where  $n$  is the video trick mode playback speed relative to the normal playback speed. In step 320, the audio data for the segment of the video presentation that is being played back in the video trick mode can be read.

In step 325, the control CPU 122 can configure the audio decoder 182 or DSP 186 to drop selected audio samples by dropping audio samples at a rate of  $(n-1)$  of every  $n$  samples. Dropping audio samples in this manner has the advantageous effect of speeding up the audio to substantially match the speed of the video. However, if the remaining audio samples were simply passed to the audio D/A 184 for subsequent conversion to analog format, then the result would be a change in frequency of the audio by a factor of  $n$ . This change in frequency can cause voices to be high pitched and difficult to understand. Accordingly, the digital audio output from the audio decoder 182 can be processed by DSP 186.

In step 330, the DSP can transform remaining audio samples from time domain to their corresponding frequency domain equivalents. Control CPU 122 can advantageously select the DSP 186 as the input for audio D/A 184. The DSP 186 can receive digitized audio from the audio decoder 182 and processes such audio to create more natural sounding audio. More particularly, in step 330 the DSP 186 can configure the FFT processing element 186a to transform received audio signals that are in the time domain, to frequency domain audio signals.

In step 335, DSP 186 can configure frequency scaling element 186b to scale the frequency of the frequency domain audio signal by a factor  $1/n$ ." (See Specification, page 7, line 23 through page 8, line 11).

In contrast to the invention of the Applicant, Suito is directed to a sound reproduction method and sound reproduction apparatus. In Suito, the method delimits a sound signal reproduced at a recording medium at a speed higher than a normal speed into successive processing unit periods. For each processing unit period, sound absence portion(s) of the reproduced sound signal are deleted (or

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partially deleted) within a range corresponding to a normal speed reproduction. Sound presence portions preceding and following the deleted absence portions are joined or compressed to produce a recognizable sound signal. However, there is absolutely no teaching, suggestion or disclosure in Suito for "repeating or dropping selected ones of said digital audio samples at a rate corresponding to a selected trick mode video playback speed of said video presentation" or "transforming said digital audio samples from time domain to corresponding frequency domain audio samples" or "scaling a playback audio frequency of said frequency domain audio samples in accordance with said trick mode playback" as taught in the Applicant's Specification and claimed in at least the Applicant's claim 1.

More specifically, in contrast to the invention of the Applicant Suito does not teach, suggest or disclose "repeating or dropping selected ones of said digital audio samples at a rate corresponding to a selected trick mode video playback speed of said video presentation" as taught in the Applicant's Specification and claimed in at least the Applicant's claim 1. Instead, in Suito sound absence portion(s) of a reproduced sound signal are deleted (or partially deleted) within a range corresponding to a normal speed reproduction and sound presence portions proceeding and following the deleted absence portions are joined or compressed to produce a recognizable sound signal during higher than normal speed reproduction. That is, Suito teaches deleting sound absence portions and not repeating and dropping selected digital audio samples as taught and claimed in the Applicant's invention.

Even further, there is absolutely no teaching, suggestion or disclosure in Suito for "transforming said digital audio samples from time domain to corresponding frequency domain audio samples" as taught in the Applicant's Specification and claimed in at least the Applicant's claim 1. More specifically and as recited above, the Applicant teaches that in one embodiment a DSP can transform remaining audio samples from a time domain to corresponding frequency domain equivalents. That is, in the invention of the Applicant, the DSP 186 configure an FFT processing element to transform received audio signals that are in the time domain, to frequency domain audio signals. There is absolutely no

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teaching, suggestion or disclosure in Suito for such transformation. More specifically, as cited by the Examiner Suito specifically recites:

"FIG. 3 shows a construction of the amplitude suppression processing section 70. Referring first to FIG. 3, sound data of an output of the MPEG audio decoder 14 described above are inputted as an input sound signal to an input terminal 71 of the amplitude suppression processing section 70. The input sound signal is supplied to a consonant component separation filter 72 and a formant component separation filter 73, and consonant components in the input sound signal are extracted by and outputted from the consonant component separation filter 72." (See Suito, col. 7, lines 22-31).

And

"Then, the output of the formant component separation filter 73 and the control coefficient W from the control section 75 are supplied to an amplitude suppression section 76, by which the output of the formant component separation filter 73 is attenuated with the control coefficient W as hereinafter described.

Further, a frequency characteristic correction filter 77 mixes the output of the consonant component separation filter 72 and an output of the amplitude suppression section 76 and performs a required frequency characteristic correction process such as equalizing processing for a signal obtained by the mixture. An output sound signal after the processing by the frequency characteristic correction filter 77 is obtained at an output terminal 79 of the amplitude suppression processing section 70. The frequency characteristic correction filter 77 has a filter coefficient and a processing band set in response to a reproduction magnification for higher speed reproduction. However, the output of the consonant component separation filter 72 and the output of the amplitude suppression section 76 may be merely mixed without performing the correction of the frequency characteristic by the frequency characteristic correction filter 77." (See Suito, col. 7, line 53 through col. 8, line 8).

As clearly depicted by at least the portion of Suito presented above, in Suito a frequency characteristic correction filter mixes the output of the consonant component separation filter and an output of the amplitude suppression section and performs a required frequency characteristic correction process, such as equalizing processing for a signal obtained by the mixture. However the Applicant respectfully submits that there is absolutely no teaching, suggestion or disclosure in Suito for "transforming said digital audio samples from time domain to corresponding frequency domain audio samples" as taught in the Applicant's Specification and claimed in at least the Applicant's claim 1.

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Even further, the Applicant submits that there is absolutely no teaching, suggestion or disclosure in Suito for "scaling a playback audio frequency of said frequency domain audio samples in accordance with said trick mode playback" as taught in the Applicant's Specification and claimed in at least the Applicant's claim 1. More specifically and as recited above, the Applicant teaches that in one embodiment, the DSP of the Applicant's invention can configure a frequency scaling element to scale the frequency of the frequency domain audio signal by a factor corresponding to a trick mode video playback speed. The Applicant respectfully submits that there is absolutely no teaching, suggestion or disclosure in Suito for such frequency scaling. In fact, the only teaching in Suito for anything similar to scaling is the teachings of Suito for amplitude suppression. However, the Applicant submits that amplitude suppression in no way teaches, suggests or anticipates the frequency scaling as taught and claimed by the Applicant. In fact in Suito, the only mention of frequency is a frequency characteristic correction filter, which mixes the output of a consonant component separation filter and an output of an amplitude suppression section and performs a required frequency characteristic correction process, such as equalizing processing for a signal obtained by the mixture. That is in Suito, a frequency characteristic correction filter mixes the output of a component separation filter and an amplitude suppression section to time the signals to ensure the proper mixture of the signals. However, the Applicant respectfully submits that there is absolutely no teaching suggestion or disclosure in Suito for scaling a playback audio frequency of said frequency domain audio samples in accordance with said trick mode playback" as taught in the Applicant's Specification and claimed in at least the Applicant's claim 1.

For at least the reasons recited above, the Applicant respectfully submits that Suito fails to teach, suggest or disclose at least each and every element of the Applicant's claimed invention, arranged as in at least the Applicant's claim 1 as required for anticipation. Therefore, the Applicant respectfully submits that the teachings and disclosure of Suito do not anticipate the Applicant's invention, at least with respect to independent claim 1.

Therefore, the Applicant submits that for at least the reasons recited above, independent claim 1 is not anticipated by the teachings of Suito and, as such, fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

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Likewise, independent claim 13 recites similar relevant features as recited in the Applicant's independent claim 1. As described above, there is absolutely no teaching, suggestion or disclosure in Suito for at least "repeating or dropping selected ones of said digital audio samples at a rate corresponding to a selected trick mode video playback speed of said video presentation" or "transforming said digital audio samples from time domain to corresponding frequency domain audio samples" or "scaling a playback audio frequency of said frequency domain audio samples in accordance with said trick mode playback" as claimed by the Applicant's independent claims 1 and 13. As such, the Applicant respectfully submits that for at least the reasons recited above independent claim 13 is also not anticipated by the teachings of Suito and also fully satisfies the requirements of 35 U.S.C. § 102 and is patentable thereunder.

Furthermore, dependent claims 2, 6, 11-12, 14, 18, 23 and 24 depend either directly or indirectly from Independent claims 1 and 13 and recite additional features therefor. As such and for at least the reasons set forth herein, the Applicant submits that dependent claims 2, 6, 11-12, 14, 18, 23 and 24 are also not anticipated by the teachings of Suito. Therefore the Applicant submits that dependent claims 2, 6, 11-12, 14, 18, 23 and 24 also fully satisfy the requirements of 35 U.S.C. § 102 and are patentable thereunder.

The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

**B. 35 U.S.C. § 103**

The Examiner rejected the Applicant's claims 7-10 and 19-22 as being unpatentable over Suito as applied to claims 1 and 13 above, and further in view of Shimura (US Patent No. 6,658,197). The rejection is respectfully traversed.

The Examiner applied the Suito for teaching all of the aspects of the Applicant's claims 1 and 13 but concedes that the Suito fails to teach repeating selected ones of the audio samples at a rate inversely proportional to a selected trick mode video playback speed of said video presentation to produce a trick mode set of audio samples, and generating an audio playback signal corresponding to said trick mode set of said audio samples. However, the Examiner cites Shimura for teaching repeating selected ones of the audio samples

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at a rate inversely proportional to a selected trick mode video playback speed of said video presentation to produce a trick mode set of audio samples, and generating an audio playback signal corresponding to said trick mode set of said audio samples. The Applicant respectfully disagrees.

Claims 7-10 and 19-22 are dependent claims that depend either directly or indirectly from independent claims 1 and 13. As described above, the Applicant submits that the teachings of Suito fail to teach, suggest or anticipate the Applicant's claims 1 and 13 for at least the reasons recited above. As such and at least because the teachings of Suito fail to teach, suggest or anticipate the Applicant's claims 1 and 13 for at least the reasons recited above, the Applicant further submits that the teachings of Suito fail to teach, suggest or render obvious the Applicant's claims 7-10 and 19-22 which depend directly or indirectly from the Applicant's claims 1 and 13, respectively.

Furthermore, the Applicant submits that the teachings of Shimura fail to bridge the substantial gap between the teachings of Suito and the invention of the Applicant. More specifically, the Applicant submits that the teachings of Shimura for an audio signal reproduction apparatus and for reproducing a digital audio signal recorded on a recording medium by a predetermined number of samples, at a recording medium travel speed different from the travel speed during the recording fail to teach, suggest or make obvious a method and apparatus playing an audio track during video trick mode playback of a video presentation including at least "repeating or dropping selected ones of said digital audio samples at a rate corresponding to a selected trick mode video playback speed of said video presentation" or "transforming said digital audio samples from time domain to corresponding frequency domain audio samples" or "scaling a playback audio frequency of said frequency domain audio samples in accordance with said trick mode playback" as claimed by the Applicant's independent claims 1 and 13.

That is, in Shimura the pitch control of a reproduced digital audio signal is performed such that when the reproduction speed of the recording medium is lower than the travel speed during the recording, in response to the reproduction speed, pitch is automatically controlled to a fixed or variable pitch. Furthermore, in Shimura even if the reproduction is at a lowered speed, it is possible to recognize

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the contents of conversation or melody of a music source as well as to distinguish from noise such that the reproduction sound clearness is enhanced.

The invention of Shimura includes a reproduction means for reproducing from the recording medium the digital audio signal based on the predetermined number of samples; a pitch control means for performing pitch control of the digital audio signal reproduced; a speed detection means for detecting a reproduction speed of the recording medium from elements of a travel mechanism of the recording means; and a pitch decision means responding to the output of the speed detection means, and in a case if the reproduction speed of the recording medium is lower than the travel speed of the recording, so that the pitch control means decides a pitch variable period and a pitch fixed interval. However, there is absolutely no teaching, suggestion or disclosure in Shimura for at least "a control processor for repeating or dropping selected ones of said digital audio samples at a rate corresponding to a selected trick mode video playback speed of said video presentation" and "a digital signal processor (DSP) comprising a fast Fourier transform (FFT) processing element for transforming said digital audio samples from time domain to corresponding frequency domain audio samples" where "said digital signal processor comprising a scaling element for scaling a playback audio frequency of said frequency domain audio samples in accordance with said trick mode playback" as taught in the Applicant's Specification and claimed by at least the Applicant's claims 1 and 13.

Therefore, the Applicant submits that for at least the reasons recited above, independent claims 1 and 13 are not rendered obvious by the teachings of Suito and Shimura, alone or in any allowable combination, and, as such, fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder. As such and at least because the teachings of Suito and Shimura fail to teach, suggest or render obvious the Applicant's claims 1 and 13 for at least the reasons recited above, the Applicant further submits that the teachings of Suito and Shimura, alone or in any allowable combination, also fail to teach, suggest or render obvious the Applicant's claims 7-10 and 19-22 which depend directly or indirectly from the Applicant's claims 1 and 13, respectively, and, as such, claims 7-10 and 19-22 fully satisfy the requirements of 35 U.S.C. § 103 and are patentable thereunder.



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The Applicant reserves the right to establish the patentability of each of the claims individually in subsequent prosecution.

**Conclusion**

The Applicant would like to thank the Examiner for pointing out allowable subject matter, however, the Applicant respectfully submits that all of the Applicant's claims are now in allowable form.

Thus the Applicant submits that none of the claims, presently in the application, are anticipated under the provision of 35 U.S.C. § 102 or rendered obvious under the provisions of 35 U.S.C. § 103. Consequently, the Applicant believes that all these claims are presently in condition for allowance. Accordingly, both reconsideration of this application and its swift passage to issue are earnestly solicited.

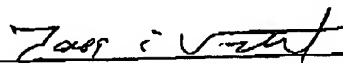
If however, the Examiner believes that there are any unresolved issues requiring adverse final action in any of the claims now pending in the application, or if the Examiner believes a telephone interview would expedite the prosecution of the subject application to completion, it is respectfully requested that the Examiner telephone the undersigned.

No fee is believed due. However, if a fee is due, please charge the additional fee to Deposit Account No. 07-0832.

Respectfully submitted,

Ronald L. Blair

By:

  
Jorge Tony Villabon, Attorney  
Reg. No. 52,322  
(609) 734-6445

Patent Operations  
Thomson Licensing Inc.  
P.O. Box 5312  
Princeton, New Jersey 08543-5312

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